

Increasing Sepsis Bundle Compliance in an Effort to Improve Health and Cost Outcomes

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AIM

To increase sepsis bundle compliance and decrease length of stay, mortality, and charges per encounter from pre- to post-intervention, with the intervention lasting ten months.

PROJECT DESIGN / STRATEGY

Interdisciplinary collaboration among Trinity Health executive leadership, physicians, nurses, and care coordinators from various hospital departments who work regularly with each other and the Relias clinical effectiveness team to set measurable targets, review progress, and evaluate process and outcomes. To better understand potential program impact, a retrospective analysis examined data (n=4475) from Trinity Health (intervention group) and two similar health systems (control group) for the four months prior to and following the ten-month intervention.

MEASURES

Measure	Numerator	Denominator
Length of stay	Sum per inpatient encounter days	N/A
Sepsis-related mortality	Number of deaths (DISP=20) among cases meeting the rules for the denominator	Count of all encounters
Charges / encounter	Sum of gross facility charges for the entire hospital stay for all encounters in the denominator. This does not include professional billing by providers involved in the care.	Count of encounters
Sepsis Bundle Compliance	The number of patients in the denominator who received ALL of the following components (if applicable) for the early management of severe sepsis and septic shock: initial lactate levels, blood cultures, antibiotics, fluid resuscitation, repeat lactate level, vasopressors, and volume status and tissue perfusion reassessment	Inpatients aged ≥ 18 with an ICD-10-CM Principal or Other Diagnosis Code of Sepsis, Severe Sepsis, or Septic Shock

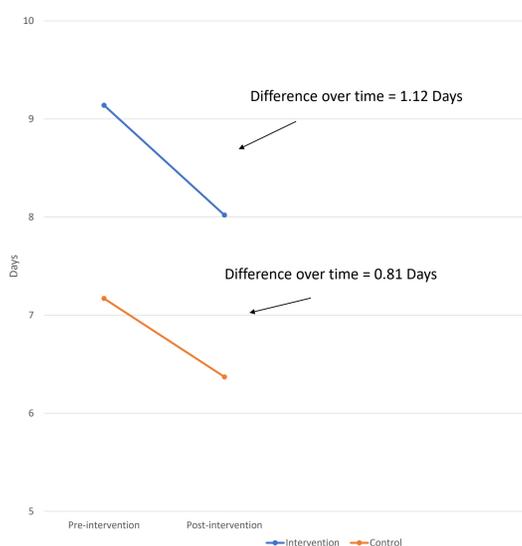
CHANGES MADE

To increase sepsis bundle compliance and improve sepsis-related health and cost outcomes, Trinity Health, a non-profit health system in North Dakota, implemented a ten-month sepsis quality improvement program consisting of three components:

- 1. Clinical alerts** to the nurses instructing action for sepsis bundle compliance. The purpose of these alerts was to capture the provider's attention (via the nurse) to take the necessary steps required to comply with the sepsis bundle in the amount of time required by CMS.
- 2. Audit and feedback** to identify and report variations related to medical outcomes differences between providers and hospital units with the data provided by Relias, a healthcare performance solutions company.
- 3. Staff education** for the clinical staff on rewriting order sets, sepsis recognition, and adherence to the sepsis order set and bundle. Throughout the entire intervention, Trinity held weekly meetings for physicians, nurses, and care coordinators from a variety of hospital departments that were focused on sepsis bundle compliance and improving care for sepsis patients.

RESULTS

Length of Stay



Charges per Encounter



Sepsis Bundle Compliance

Sepsis bundle compliance for the intervention group increased from 18.6% to 58.8% from pre- to post-intervention. Sepsis bundle compliance was not tracked for the control group, which is a limitation to the study.

Sepsis-Related Mortality

There was not a statistically significant difference between the two study groups for sepsis-related mortality.

LESSONS LEARNED

A sepsis quality improvement program that includes clinical alerts, provider education, and audit and feedback may be effective for increasing sepsis bundle compliance, decreasing length of stay, and decreasing patient health care costs. We recommend further research using a randomized controlled trial to better determine the impact of a sepsis-focused quality improvement program on sepsis-related health and cost outcomes. Collaborative action by health systems and policy makers is needed to reduce the morbidity, mortality, and high costs related to sepsis and septic shock that is prevalent in the U.S. hospitalized patient population.